CHAPTER 13
RECREATION

This chapter describes the recreation resources in the study area and potential changes that could occur due to implementation of the alternatives. Recreational uses at the Salton Sea are closely related to the state of the fish and wildlife habitat, and surface water elevation and quality of open water in the Sea Bed. The most common recreation activities around the Salton Sea include sport fishing, boating, birdwatching, camping, hunting, ecotourism, off highway vehicle use and rock hunting.

STUDY AREA

The study area is defined as the geographical area within which the large majority of potential impacts are expected. The study area for this analysis includes the recreational areas near the Salton Sea, as summarized on Figure 13-1.

REGULATORY REQUIREMENTS

Recreation resources in the study area are subject to regulations of federal, State, or local agencies, depending on jurisdiction. For example, State Recreation Areas are regulated by the State of California and National Wildlife Refuges are regulated by the federal government.

HISTORICAL PERSPECTIVE

Widespread recreational use of the Salton Sea was related to establishment of several marine sport fish populations in the early 1950s, which originated from the introduction of fish collected in the Gulf of California by the California Department of Fish and Game (DFG) (Walker et al., 1961). The fishery grew rapidly, and by the 1960s the sport fisheries had grown to a level where the Salton Sea became a popular destination for a variety of related recreational activities, including operation of commercial partyboats. Partyboats were large boats which took groups of anglers out to fish on the Salton Sea for a fee, were licensed by DFG, and were required to keep logs of their catch.

From 1962 through 1972 (omitting 1964, for which records are not available) between 2 to 14 commercial partyboats were operated at the Salton Sea (Black, 1974). Individual boats were deployed from 2 to 5 months each year, although there were boats operating all months of the year. They made a combined annual number of trips of 11 to 363 (averaging 186.2 trips annually). The peak of partyboat activity and success was during the late 1960s. During 1971 and 1972, there was a marked decrease in angler success, and a subsequent decline in angler use of partyboats.

From 1963 through 1969 (omitting 1968 due to lack of data) creel censuses and aircraft surveys for anglers were conducted, and produced estimates of angler days, combining shore and boat anglers. These surveys identified from 246,199 to 377,010 angler days annually (Hulquist, 1981). During this time period, boat launchings from the Salton Sea State Recreation Area (SRA) averaged 12,664 boats annually.

An economic study of the Salton Sea published in 1969 (Harris et al., cited in CIC Research, Inc., 1989) estimated the visitor use of the Salton Sea at 1,500,000 recreation days/year. Two thirds of these recreation days were for sport fishing.

In addition to the deliberate fish introductions by DFG, there were incidental (unauthorized) introductions of species of tilapia into the Salton Sea. Red belly tilapia became the dominant tilapia species in the Salton Sea until replaced around 1979 by the Mozambique mouthbrooder tilapia. Tilapia are primarily a

shallow-water inhabitant, and provided a new opportunity for shore anglers, whose numbers increased during the late 1970s and 1980s.

In May 1986, a public health advisory limiting Salton Sea fish consumption was issued by the California Environmental Protection Agency Office of Environmental Health Hazard Assessment (OEHHA) (OEHHA, 1986). Also during the late 1980s there was considerable negative publicity generated by high levels of pollution in the New River, which discharges into the Salton Sea. These events created widespread public perception that fish from the Salton Sea were not safe to eat, and that the Salton Sea was not safe for water contact recreation. As a result, a dramatic decrease in angling and other water-based recreation was evident after the late 1980s.

During the 1990s, bird disease events of increasing size and frequency, coupled with chronic large scale fish die-offs, contributed further to public fears of human health risks from contact with the Salton Sea, further suppressing recreational use.

Starting in 2000, all sport fish populations underwent a dramatic reduction. Marine sport fish species have been undetectable in DFG gill net sampling since mid-May, 2003. In addition, none have been detected in fish kills, or presented by anglers since mid-May 2003. Tilapia populations persist in the Salton Sea, but at levels which are only 10 percent of those recorded in the 1990s.

In response to the loss of the marine sport fish, angling and recreational boating has virtually ceased at the Salton Sea, although a handful of shore anglers still appear seasonally at the SRA.

Of eight boat launching facilities which were active in the 1980s, today only a single marina (Varner Harbor at the SRA Headquarters) has a launch ramp which is navigable throughout the year. On most days there are no boats or other watercraft present on the Salton Sea. The occasional boat which is presently observed on the Salton Sea is almost without exception a research vessel (Crayon, 2006).

The Salton Sea State Park, later named the Salton Sea SRA, was dedicated on February 12, 1955. It served as an important inland recreation area until the late 1970s, when visitation declined because of the deteriorating environmental quality of the Salton Sea. This facility has over 1,000 campsites, day-use sites, and other amenities (CSP, 2006).

In addition to water related recreation, the Salton Sea and surrounding areas provide other popular recreational activities, such as birdwatching, wildlife observation, camping, hiking, picnicking, and hunting. The Salton Sea International Bird Festival has been held annually in the Imperial Valley since 1997. On average, 250 to 325 people attended the tours and 1,000 attended the children's birdwatching events and displays. Based upon reservation information, attendees were from 20 states and Canada (Barrett, 2006).

DATA SOURCES

Information for this section was obtained from documents prepared for related projects and from personal communications with staff of DFG and U.S. Department of the Interior, Fish and Wildlife Service (Service).

DATA LIMITATIONS

Information in the source documents are primarily based on recreational use during the last several years in the study area, as described below. Previous studies have made projections of future recreational use based on information available at the time.

The following discussion on recent conditions in recreation resources focuses on three areas: Imperial County (excluding the Salton Sea shoreline), Coachella Valley (excluding the Salton Sea shoreline) and the Salton Sea shoreline.

Imperial County

Imperial County is a popular recreational area for water and desert-based activities. Recreational facilities within the County include the Weist Lake County Park, Heber Dunes State Vehicular Recreation Area, the Sonny Bono Salton Sea National Wildlife Refuge, Imperial Wildlife Area, and the southern portion of the Salton Sea SRA. Recreational activities in the irrigation canals in Imperial County is not allowed. However, individuals do fish in various irrigation canals for species such as channel catfish, bass, and sunfish (IID and Reclamation, 1994).

Weist Lake County Park is located along the Alamo River near Brawley and includes facilities for boating, fishing, and waterfowl hunting (IID and Reclamation, 2002a).

The Heber Dunes State Vehicular Recreation Area is located 8 miles east of Heber and about 4 miles south of El Centro. The Dunes were formed by sand deposits from a previous riverbed of the Alamo River. This area includes 343 acres, which were previously part of the Imperial County park system, for off-highway vehicle recreation. The Heber Dunes State Vehicular Recreation Area also includes areas for picnicking, camping and baseball.

Hunting for upland and waterfowl species occurs at the Imperial Wildlife Area, Sonny Bono Salton Sea National Wildlife Refuge, and on private lands including duck clubs.

Coachella Valley

The Coachella Valley area contains a wide array of recreational opportunities for water, mountain, and desert-based activities. Recreational areas include the Coachella Valley Preserve, Santa Rosa and San Jacinto Mountains National Monument, and Lake Cahuilla. In addition, there are about 100 golf courses in the Coachella Valley.

Many of the lands used for recreational purposes in the Coachella Valley are under the jurisdiction of the U.S. Department of the Interior, Bureau of Land Management (BLM), including the Coachella Valley Preserve located about 10 miles east of Palm Springs along Interstate 10. The preserve includes sand dunes in a 20,000 acre sanctuary that includes sensitive wildlife species and palm oases.

The Santa Rosa and San Jacinto Mountains National Monument designation approved by Congress in 2000. As the name implies it is located in the Santa Rosa and San Jacinto Mountains and encompasses 272,000 acres. It is managed jointly by BLM and the U.S. Forest Service. Recreational uses within the National Monument include, hiking, mountain biking, photography, horseback riding, and hunting.

Lake Cahuilla, a 120 acre reservoir of the Coachella Canal located near La Quinta, provides an important fishery in the area. Lake Cahuilla Recreation Area, managed by the Riverside County Parks Department, is a popular campground with fishing, picnic grounds, hiking, and horseback riding.

Salton Sea Shoreline

Historically the Salton Sea has provided a variety of recreational opportunities, including swimming, water skiing, sport fishing, and boating. However, in recent years, recreational use at the Salton Sea has decreased noticeably. This shift in use is most likely related to deteriorating water quality, odors, the decline of the sport fishery, and fluctuating surface water elevation. In addition to water related recreation, the Salton Sea and surrounding areas provide other popular recreational activities, such as birdwatching, wildlife observation, camping, hiking, picnicking, and hunting. Recreational areas located around the Salton Sea are presented on Figure 13-1.

The southern shore of the Salton Sea contains such areas as the Sonny Bono Salton Sea National Wildlife Refuge and the Imperial Wildlife Area. The types of recreational uses that currently occur in this area are strongly tied to the presence of wildlife and include hunting, fishing, and wildlife viewing.

The western shore of the Salton Sea contains recreational rental housing, recreational vehicle camping, shore fishing, boating, sunbathing, hiking, and birdwatching. A number of closed resorts and restaurants are present in this area.

Salton Sea State Recreation Area

The Salton Sea SRA has been operated by the California State Parks (CSP) since 1955 and is located along 15 miles of the northeastern shoreline of the Salton Sea. During the late 1970s, water levels increased and flooded about 50 percent of the SRA. The campgrounds, Varner Harbor, and associated facilities were reestablished outside of the flooded area. The Salton Sea SRA provides opportunities for campers, boaters, swimmers, waterskiers, and anglers. There is boat launching facilities at Varner Harbor near the park headquarters. Total visitor use of the Salton Sea SRA has been recorded since 1972. Prior to official records, Salton Sea SRA staff estimate that the highest seasonal use occurred at the Salton Sea during 1961-1962, with about 660,000 visitors. Visitor use at the SRA from 1995 to 2005 is shown on Table 13-1.

Table 13-1
Salton Sea State Recreation Area Visitation Data from 1995 to 2005

Fiscal Year	Annual Visitation
1995 - 1996	99,730
1996 - 1997	209,819
1997 - 1998	281,197
1998 - 1999	210,053
1999 - 2000	235,570
2000 - 2001	196,278
2001 - 2002	228,148
2002 - 2003	245,657
2003 - 2004	227,533
2004 - 2005	278,193

Source: CSP, 2006.

Sonny Bono Salton Sea National Wildlife Refuge

The Salton Sea National Wildlife Refuge (NWR) was established in 1930 as a refuge and breeding habitat for wildlife. The refuge was renamed the Sonny Bono Salton Sea NWR in 1998 through Public Law 105-621. It is located in the southeastern portion of the Salton Sea and is operated by the Service. Most of the refuge is inundated by the Salton Sea. Along the shoreline, the refuge includes upland forage and freshwater marsh areas. This portion of the Salton Sea is an important part of the Pacific Flyway and is considered one of the premier birdwatching locations in the nation. The refuge also provides opportunities for wildlife observation, photography, picnicking, and nature trails. The Service does not regularly collect and catalogue visitor use information. However, the Service staff estimated that visitor use at the NWR from 1970 to 1990 averaged 20,000 persons/year and since 1990 has averaged 32,000 persons/year (Schoneman, 2006).

Imperial Wildlife Area

The Imperial Wildlife Area consists of three units owned by DFG. The units are primarily composed of low-lying land, which provides habitat for migratory waterfowl and reduces depredation of surrounding agricultural lands.

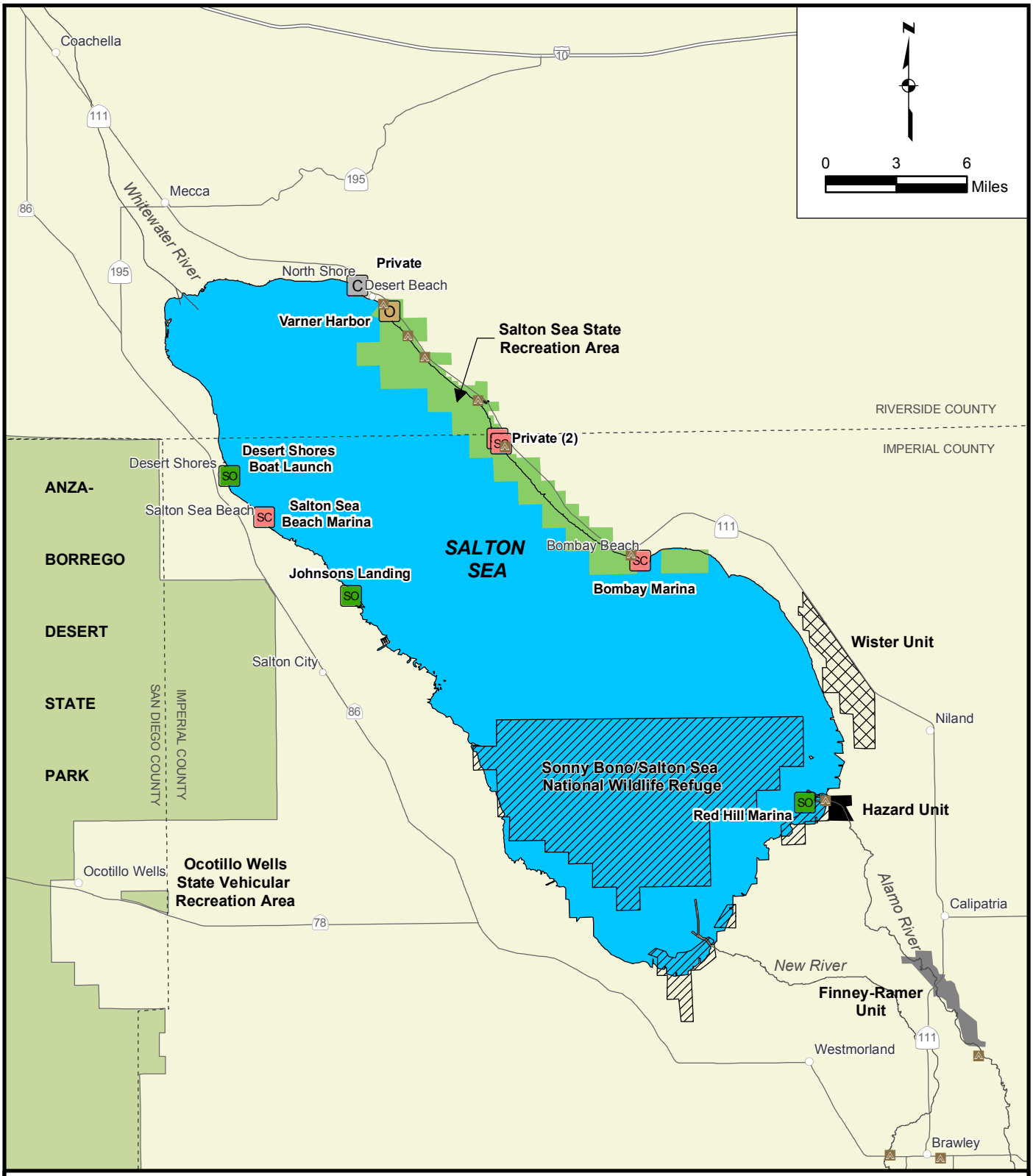

FIGURE 13-1
RECREATION RESOURCES IN THE VICINITY OF THE SALTON SEA

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The Finney-Ramer Unit is located south of the Salton Sea near the Alamo River. It was originally established by the U.S. Department of the Interior, Bureau of Reclamation (Reclamation) as a waterfowl refuge. The Unit consists of 2,047 acres, including four lakes.

The Wister (5,243 acres) and Hazard (535 acres) units are located along the southern shoreline of the Salton Sea. They consist of upland habitat and managed wetlands, primarily to provide waterfowl forage. The wildlife areas provide hunting, fishing, and recreational uses. Public use information for the unit has been recorded since 1961, however only data from 1990 to 2000 were readily available during preparation of the PEIR, as shown in Table 13-2.

Table 13-2
Imperial Wildlife Area – Wister Unit – Public Use Profile for 1990 to 2000

Years (July 1 to June 30)	Fishing	Camping	Nature Study	Bird-watching	Sight-seeing	Hunting/ Other	Total
1990-91	1,300	300	168	516	360	7,405	10,049
1991-92 (no data for Sept. 1991)	3,140	868	408	2,848	1,452	8,685	17,401
1992-93 (no data for July to Sept 1992)	1,836	696	408	2,180	1,228	5,789	12,137
1993-94	1,772	556	341	1,580	598	6,562	11,409
1994-95	2,260	472	344	1,512	1,216	8,951	14,755
1995-96	2,408	357	295	2,031	1,301	9,287	15,679
1996-97	3,353	323	382	2,064	1,479	10,136	17,737
1997-98	1,852	280	292	2,784	1,248	9,961	16,417
1998-99	2,080	292	316	1,948	1,082	8,473	14,191
1999-2000	1,768	408	304	1,996	1,132	7,311	12,919
TOTALS	**21,769**	**4,552**	**3,258**	**19,459**	**11,096**	**82,560**	**142,694**

Source: DFG, 1990-2000.

ENVIRONMENTAL IMPACTS

Analysis Methodology

This section addresses both the impacts to existing recreation resources and the potential for the development of future recreational opportunities for each alternative. Impacts to existing recreation resources are evaluated based on the changes to the size, function, or access to existing recreation resources under each of the alternatives.

In February 2004, the Salton Sea Authority appointed an Outdoor Recreation Advisory Task Force (ORATF) to evaluate the recreational potential of a restored Salton Sea. As part of the Recreation and Economic Opportunities Assessment for the Salton Sea (Salton Sea Authority, 2005), a survey was developed and distributed to ORATF members, mailing lists of stakeholders, and to the general public. Two public meetings were held in April 2005 to solicit comments from the general public and stakeholders. The results were used to develop an overall list of recreation opportunities that could be considered in the future for the Salton Sea, as presented in Table 13-3 (Salton Sea Authority, 2005).

Table 13-3
Results of the Recreation and Economic Opportunities Survey

Prioritization Based on the Survey	Recreational Opportunity	Prioritization Based on the Survey	Recreational Opportunity
1	Birdwatching/Photography	11	Swimming/Sunbathing
2	Power boating/ Sailboating	12	Camping-Guest Rentals
3	Photography-general	13	Horseback Riding
4	Hiking	14	Windsurfing
5	Camping-Tents	15	Private Water Craft
6	Freshwater Fishery	16	Hunting
7	Kayaking	17	Resort-Golf
8	Marine Fishery	18	Resort-Gaming
9	Biking	19	Skydiving
10	Camping-Recreational Vehicles	20	Off-highway Vehicle Use

Source: Salton Sea Authority, 2005

The Recreation and Economic Opportunities Survey provided details on the strategies and factors for implementation of each of the identified recreational opportunities. The analysis in this PEIR assesses the compatibility of alternatives for recreational opportunities, in accordance with the objectives described in Chapter 1. The alternatives include many components, as described in Chapter 3. Potential recreational opportunities that could be provided by each component are shown in Table 13-4. The ability of a component to provide recreational opportunities was based on a determination of compatibility between the recreation activity and the projected function of each component. The listing of potential opportunities does not imply that the component is ideally suited for the recreation activity or that the opportunity would be implemented. During project-level analyses, specific proposals for inclusion of recreational opportunities in each component would be evaluated. It is also possible that a component may be used for a recreational opportunity for a specific period of time and then modified due to implementation of other actions. For example, Saline Habitat Complex may provide more intense recreational activities during Phase I when other opportunities are not provided in other areas of the Sea. However, as other components are completed, recreational activities may be provided in different areas.

Significance Criteria

The following significance criteria were based on CEQA and air quality regulatory agency guidance and used to determine if changes as compared to Existing Conditions and the No Action Alternative would:

- Result in increased use of existing neighborhood and regional parks or other recreational facilities such that substantial deterioration of the facility would occur or be accelerated; and
- Include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environmental.

An additional significance criterion was included in the PEIR:

- Substantially change recreational opportunities.

Table 13-4
Recreational Opportunities By Components Considered in the Alternatives

Component	Public Access (Yes or No)	Fishing	Motor Boating	Water Skiing	Personal Watercraft	Non-motor boats (Kayaks, canoes)	Bird-watching	Hiking	Hunting	Swimming	Camping	Off - Highway Vehicles	Day Use	Other (Biking, Horse-riding)
Saline Habitat Complex	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes	No	No	No	Yes	No
Pupfish Channel	Yes	No	No	No	No	No	Yes	Yes	Yes	No	No	No	Yes	No
Marine Sea	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
Shoreline Waterway	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
Air Quality Management	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Conveyance	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Sedimentation/ Distribution Basins	Yes	Yes	No	No	No	Yes	Yes	Yes	No	No	No	No	Yes	No
Rings and Lakes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
Recreational Saltwater Lake	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recreational Estuary Lake	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: Recreational opportunities in the Brine Sink are different for each alternative and described below.

Application of Significance Criteria

Significance criteria have been applied to the alternatives considered in the PEIR. The following list summarizes the overall methodology in the application of the criteria to the alternatives:

- **Increase use of Existing Recreational Facilities that may Require or Accelerate need for Improvements, and the Need to Construct or Expand Recreational Facilities** – Under the No Action Alternative, visitor use at the Salton Sea would continue to decline as the surface water elevation declines and salinity increases. The loss of recreational opportunities at the Salton Sea could increase recreational uses at other locations in the vicinity of the Salton Sea. However, due to the relatively small number of users, it is not anticipated that the diversion of users would cause adverse impacts to the other locations. Therefore, the analysis does not address these criteria; and
- **Substantially Change Recreational Opportunities** – The analysis includes considerations for recreational opportunities under each alternative.

Summary of Assumptions

The assumptions related to the descriptions of the alternatives are described in Chapter 3. The specific assumptions related to the analysis of recreational opportunities are summarized in Table 13-5.

Table 13-5
Summary of Assumptions for Recreational Opportunities

Assumptions Common to All Alternatives	
1. The analysis only evaluates opportunities provided by each component.	
2. Tilapia would likely be present in all of the water bodies with salinity of less than 60,000 mg/L.	
3. Other sport fish would likely be present in all water bodies with salinity of less than 40,000 mg/L	
4. Parks and recreational facilities would be developed for growing populations as described in general plans prepared for Imperial and Riverside counties and incorporated communities.	
5. 4) IID is required to mitigate the impacts to boat launching facilities, campgrounds, and trails that would become stranded as the Salton Sea water elevation recedes due to the IID Water Conservation and Transfer Project. The relocation may occur incrementally until the Salton Sea reaches its minimum and stable elevation which was projected to be -246 feet mean sea level (IID and Reclamation, 2002).	
Assumptions Specific to the Alternatives	
No Action Alternative and Alternatives 1, 2, 3, 4, 5, 6, 7, and 8	No additional assumptions were made.

Summary of Impact Assessment

The impacts shown in Table 13-6 assume implementation of the Next Steps to reduce the adverse impacts.

Table 13-6
Summary of Benefit and Impact Assessments to Recreation Resources

Alternative	Basis of Comparison	Changes by Phase				Comments	Next Steps
		I	II	III	IV		
Criterion: Substantially change recreational opportunities.							
No Action Alternative	Existing Conditions	O	S	S	S	Recreational opportunities would be reduced as the salinity increases.	None available.
	No Action Alternative	NA	NA	NA	NA		
Alternatives 1 and 2	Existing Conditions	O	B	B	B	Recreational opportunities could be provided in the Saline Habitat Complex, Sedimentation/Distribution Basins, and portions of the Brine Sink.	During project-level analyses, evaluate specific opportunities.
	No Action Alternative	O	B	B	B		
Alternative 3	Existing Conditions	O	B	B	B	Recreational opportunities could be provided in the Concentric Rings, Sedimentation/Distribution Basins, and portions of the Brine Sink.	Same as Alternative 1.
	No Action Alternative	O	B	B	B		
Alternative 4	Existing Conditions	O	B	B	B	Recreational opportunities could be provided in the Concentric Lakes, Sedimentation/Distribution Basins, and portions of the Brine Sink.	Same as Alternative 1.
	No Action Alternative	O	B	B	B		
Alternatives 5-8	Existing Conditions	O	B	B	B	Recreational opportunities could be provided in the Saline Habitat Complex, Marine Sea (Recreational Saltwater and Estuary lakes in Alternatives 7), Sedimentation/Distribution Basins, and portions of the Brine Sink.	Same as Alternative 1.
	No Action Alternative	O	B	B	B		

Legend for Types of Benefits or Impacts in Each Phase:
S = Significant Impact
O = No Impact
L = Less Than Significant
B = Beneficial Impact
NA = Not Analyzed

No Action Alternative

As described in Chapter 3, this alternative would involve construction and operations and maintenance activities for the Sedimentation/Distribution Basins, Air Quality Management, Pupfish Channels, and Salton Sea. The construction activities would be identical under the No Action Alternative-CEQA Conditions and the No Action Alternative-Variability Conditions. Therefore, impacts related to construction disturbance would be the same for both conditions. However, there would be differences in water surface elevations and associated recreational opportunities.

Recreational opportunities under the No Action Alternative would change as the salinity increases and the fish population declines. There is the potential that throughout the study period some fish, such as tilapia, could occur at the estuaries of the New, Alamo and Whitewater rivers where salinity would be lower.

Many of the recreational facilities are currently located adjacent to the shoreline. As the water elevation declines, the distance between the existing facilities and the open water would increase. Under the No Action Alternative, Imperial Irrigation District (IID), as mitigation for the IID Water Conservation and Transfer Project, is required to relocate campgrounds, roads, and trails that are currently located adjacent to the Salton Sea at the SRA; and boat launches along the shoreline. The facilities must be relocated as the water recedes until the water surface elevation is at -248 feet mean sea level (msl), or the elevation directly attributable to the IID Water Conservation and Transfer Project. Therefore, by 2078, under the No Action Alternative-CEQA Conditions and No Action Alternative-Variability Conditions, these modified facilities would be separated from the Salton Sea by about 2 and 14 vertical feet, respectively.

Waterfowl hunting activities at the Salton Sea are concentrated on the federal and State refuges and private duck clubs in the Coachella and Imperial valleys. These are freshwater environments managed primarily for attracting and supporting waterfowl. While the waterfowl species sought by hunters (primarily dabbling ducks and geese) occasionally use the shoreline of the Salton Sea, the refuges and duck clubs support substantially higher waterfowl densities. As the Salton Sea recedes and becomes more saline under the No Action Alternative, use of the shoreline by waterfowl could decline. In addition, many duck-hunting blinds would become stranded and hunting opportunities in the Salton Sea would be reduced. Birdwatching opportunities also could be reduced as compared to existing conditions.

The Pupfish Channels and 600 acres of Sedimentation/Distribution Basins could provide recreational opportunities, as shown on Table 13-4.

Alternative 1 – Saline Habitat Complex I

As described in Chapter 3, this alternative would involve construction and operations and maintenance activities for the Sedimentation/Distribution Basins, Air Quality Management, Pupfish Channels, Saline Habitat Complex, and Brine Sink.

Under Alternative 1, the Pupfish Channels, 38,000 acres of Saline Habitat Complex, 600 acres of Sedimentation/Distribution Basins, and a portion of the 123,000-acre of Brine Sink could provide future recreational opportunities, as shown on Table 13-4. This alternative would accommodate the extension of boat launch, campground, and trail facilities as described in the No Action Alternative.

The Saline Habitat Complex would likely support tilapia. However, this area is not expected to support other historic Salton Sea marine sport fish species. It is expected that salinities in the Brine Sink would be too high to support a sport fishery except at the estuary areas of the New, Alamo and Whitewater rivers.

Birdwatching, wildlife observation, and waterfowl hunting opportunities are expected to be similar to Existing Conditions. Opportunities on the Brine Sink would be similar to the Salton Sea under No Action

Alternative. The Saline Habitat Complex could increase opportunities as compared to No Action Alternative.

The Brine Sink would provide opportunities for non-motorized boating. However, the salinity would be too high to support motorized boating. It is assumed that IID would extend the boat launches to -248 feet msl. To utilize the Brine Sink, the boat launches would need to be extended to -264 feet msl. These conditions would be similar to No Action Alternative.

Swimming, camping, hiking, and picnicking opportunities along the shoreline would be similar to Existing Conditions and No Action Alternative.

Alternative 2 – Saline Habitat Complex II

As described in Chapter 3, this alternative would involve construction and operations and maintenance activities for the Sedimentation/Distribution Basins, Air Quality Management, Saline Habitat Complex, Shoreline Waterway, Saltwater Conveyance, and Brine Sink.

Under Alternative 2, recreational opportunities would be provided by 75,000 acres of Saline Habitat Complex, 600 acres of Sedimentation/Distribution Basins, and a portion of the 85,000-acre Brine Sink. Recreational opportunities in these areas would be similar to Alternative 1.

Alternative 3 – Concentric Rings

As described in Chapter 3, this alternative would involve construction and operations and maintenance activities for the Sedimentation/Distribution Basins, Air Quality Management, First and Second rings, and Brine Sink.

Under Alternative 3, 61,000 acres of water in the First and Second rings, 400 acres of Sedimentation/Distribution Basins, and a portion of the 68,000-acre Brine Sink would provide future recreational opportunities, as shown on Table 13-4. The First and Second rings would provide increased opportunities for motorized and non-motorized boating, hiking, camping, picnicking, swimming as compared to Existing Conditions and No Action Alternative. Opportunities for birdwatching, wildlife observation, and hunting would be similar to Existing Conditions and greater than under the No Action Alternative.

Under Alternative 3, the First Ring would provide a navigable waterway and would allow use of the boat launches. Extension of the boat launches by IID would be from -228 to -230 feet msl, which would be less than under No Action Alternative. Use of the Second Ring for boat launches or other recreational opportunities would require ramps or bridges to provide access over the First Ring.

Tilapia would occur in the First and Second rings. It also may be feasible to establish marine sport fish species in the First and Second rings.

The Brine Sink would be smaller than under No Action Alternative and would not likely support fish, even at the estuaries.

Alternative 4 – Concentric Lakes

As described in Chapter 3, this alternative would involve construction and operations and maintenance activities for the Sedimentation/Distribution Basins; First, Second, Third, and Fourth lakes; and Brine Sink.

Under Alternative 4, 88,000 acres of water in the lakes, 400 acres of Sedimentation/Distribution Basins, and a portion of the 22,000-acre Brine Sink would provide future recreational opportunities, as shown on Table 13-4.

The First through Fourth lakes would provide increased opportunities for motorized and non-motorized boating, hiking, camping, picnicking, and swimming as compared to Existing Conditions and No Action Alternative. Opportunities for birdwatching, wildlife observation, and hunting would be similar to Existing Conditions and greater than under No Action Alternative.

The First Lake would provide a navigable waterway and would allow use of existing boat launches in the southern shoreline with minimal extensions from -228 to -230 feet msl. The Second Lake also would provide a navigable waterway and allow use of boat launches located on the western, northern, and eastern shorelines with extension from -228 to -240 feet msl. Extension of the boat launches by IID to the First and Second lakes would be less than under No Action Alternative.

The Third and Fourth lakes would provide navigable waterways if ramps or bridges provide access over the First and Second lakes.

Tilapia would occur in the First through Fourth lakes. It also may be feasible to establish marine sport fish species in the First and Second lakes by Phase II.

The Brine Sink would be smaller than under No Action Alternative and would not likely support fish, even at the estuaries.

Alternative 5 – North Salton Sea

As described in Chapter 3, this alternative would involve construction and operations and maintenance activities for the Sedimentation/Distribution Basins, Air Quality Management, Saline Habitat Complex, Shoreline Waterway, Saltwater Conveyance, Marine Sea, Marine Sea Recirculation Canal, and Brine Sink.

Under Alternative 5, 62,000 acres of water in the Marine Sea, 45,500 acres of Saline Habitat Complex, 400 acres of Sedimentation/Distribution Basins, and a portion of the 13,000-acre Brine Sink would provide future recreational opportunities, as shown on Table 13-4.

Recreational opportunities associated with the Saline Habitat Complex, Brine Sink, and Sedimentation/Distribution Basins would be similar to those described under Alternative 1.

Under Alternative 5, the Shoreline Waterway portions of the Saline Habitat Complex along the southern shoreline would allow use of boat launches in this area with minimal extension of the boat launches by IID from -228 to -230 feet msl, which would be less than under No Action Alternative. The Marine Sea would provide opportunities for boat launches and marinas along the northern shoreline with extensions of the facilities from -228 to -230 feet msl. Boat launches along the western and eastern shoreline would be extended to the Brine Sink by IID to -248 feet msl, as described in the No Action Alternative.

The Marine Sea would support motorized and non-motorized boating, hiking, camping, picnicking, swimming, birdwatching, wildlife observation, and hunting opportunities. These opportunities would be similar to Existing Conditions and greater than under No Action Alternative.

Tilapia and marine sport fish species could be established in the Marine Sea. Water quality is a significant factor in survival of aquatic organisms including fish. As described in Chapter 6, periodic anoxic conditions would cause fish kills. This could limit recreational opportunities for sport fish in the Marine Sea. Therefore, it is not possible to predict future sport fishing opportunities.

Alternative 6 – North Salton Sea Combined

As described in Chapter 3, this alternative would involve construction and operations and maintenance activities for the Sedimentation/Distribution Basin, Air Quality Management, Pupfish Channels, Saline Habitat Complex, Shoreline Waterway, Saltwater Conveyance, Marine Sea, Marine Sea Mixing Zone, Marine Sea Recirculation Canal, and Brine Sink.

Under Alternative 6, 74,000 acres of water in the Marine Sea and Marine Sea Mixing Zone, 29,000 acres of Saline Habitat Complex, 200 acres of Sedimentation/Distribution Basins, and 11,000 acres of Brine Sink would provide future recreational opportunities, as shown on Table 13-4.

Recreational opportunities associated with the Saline Habitat Complex, Brine Sink, and Sedimentation/Distribution Basins would be similar to those described under Alternative 1.

The Marine Sea and the Marine Sea Mixing Zone would support motorized and non-motorized boating, hiking, camping, picnicking, swimming, birdwatching, wildlife observation, and hunting opportunities, as described under Alternative 5. The Marine Sea and Marine Sea Mixing Zone would allow use of boat launches along all of the shorelines except along the eastern shoreline between Salt Creek and Bombay Beach. Boat launches into the Marine Sea and Marine Sea Mixing Zone would be extended from -228 to -230 feet msl, which would be less than under the No Action Alternative.

Tilapia and marine sport fish species could be established in the Marine Sea and Marine Sea Mixing Zone. Water quality is a significant factor in survival of aquatic organisms including fish. As described in Chapter 6, periodic anoxic conditions would cause fish kills. This could limit recreational opportunities for sport fish. Therefore, it is not possible to predict future sport fishing opportunities.

Alternative 7 – Combined North and South Lakes

As described in Chapter 3, this alternative would involve construction and operations and maintenance activities for the Sedimentation/Distribution Basin, Air Quality Management using Protective Salt Flat on Exposed Playa below -255 feet msl, Exposed Playa without Air Quality Management above -255 feet msl, Saline Habitat Complex, Recreational Saltwater Lake, Recreational Estuary Lake, Marine Sea Recirculation Canal, IID Freshwater Reservoir, two Treatment Plants, and Brine Sink.

Under Alternative 7, the Recreational Saltwater and Recreational Estuary lakes would provide up to 104,000 acres of open water if average inflows are 800,000 acre-feet/year. This alternative also would include 200 acres in the Sedimentation/Distribution Basin and 12,000 acres of Saline Habitat Complex not including the 1,200 acres of higher salinity Saline Habitat Complex near the Whitewater River. The Brine Sink would be too small by Phase IV to provide recreational opportunities. These areas would provide future recreational opportunities, as shown on Table 13-4.

Recreational opportunities associated in the Sedimentation/Distribution Basin and Saline Habitat Complex would be similar to those described under Alternative 1.

Assuming, the Recreational Saltwater and Recreational Estuary lakes salinity is similar to the Marine Sea and Marine Sea Mixing Zone described in Alternative 6, these areas would support motorized and non-motorized boating, hiking, camping, picnicking, swimming, birdwatching, wildlife observation, and hunting opportunities. The Recreational Saltwater and Recreational Estuary lakes would allow use of boat launches along the southern and southwestern shorelines and in the portions of the shoreline located north of mid-Sea. Boat launches into the Recreational Saltwater and Recreational Estuary lakes would be extended from -228 to -230 feet msl, which would be less than under the No Action Alternative.

The salinity of the Recreational Saltwater and Estuary lakes would be less than 60,000 mg/L if the average inflow is 717,000 acre-feet/year and less than 40,000 mg/L if the average inflow is

800,000 acre-feet/year. Therefore, tilapia angling opportunities would be similar to Existing Conditions and greater than under No Action Alternative.

Marine sport fish species could be established in the Recreational Saltwater and Estuary lakes if the average inflow is 800,000 acre-feet/year because the salinity would be equal to or less than 40,000 mg/L. However, if the average inflow is 717,000 acre-feet/year, the salinity of the Recreational Saltwater and Recreational Estuary lakes would be greater than 50,000 mg/L. Then, sport fishing opportunities would be similar to Existing Conditions and No Action Alternative.

Water quality is a significant factor in survival of aquatic organisms including fish. As described in Chapter 6, periodic anoxic conditions would cause fish kills. This could limit recreational opportunities for sport fish. Therefore, it is not possible to predict future sport fishing opportunities.

The 11,000 acres of open water in the IID reservoir could also provide recreational opportunities. These opportunities would be based upon project-level analyses to be completed by IID.

Alternative 8 – South Salton Sea Combined

As described in Chapter 3, this alternative would involve construction and operations and maintenance activities for the Sedimentation/Distribution Basins, Air Quality Management, Saline Habitat Complex, Shoreline Waterway, Marine Sea, Marine Sea Recirculation Canal, and Brine Sink.

Under Alternative 8, 83,000 acres of water in the Marine Sea, 18,000 acres of Saline Habitat Complex, 400 acres of Sedimentation/Distribution Basins, and a portion of the 9,000-acre Brine Sink would provide future recreational opportunities, as shown on Table 13-4.

Recreational opportunities associated with the Saline Habitat Complex, Brine Sink, and Sedimentation/Distribution Basins would be similar to those described under Alternative 1.

The Marine Sea would support motorized and non-motorized boating, hiking, camping, picnicking, swimming, birdwatching, wildlife observation, and hunting opportunities, as described under Alternative 5. The Marine Sea would allow use of boat launches along the shorelines except along the eastern shoreline north of Bombay Beach. Boat launches into the Marine Sea would be extended from -228 to -230 feet msl, which would be less than under the No Action Alternative.

Tilapia and marine sport fish species could be established in the Marine Sea. Water quality is a significant factor in survival of aquatic organisms including fish. As described in Chapter 6, periodic anoxic conditions would cause fish kills. This could limit recreational opportunities for sport fish. Therefore, it is not possible to predict future sport fishing opportunities.

Next Steps

Project-level analyses would identify and evaluate specific recreational opportunities and location of related facilities.